

Notes:

* n : Channel 0~F
 * vv : Value 00~7F
 * kk : Note No. 00~7F (C-1~G9)

Channel Messages

Message	MIDI(Hex)	Description (Value)
Note On	9n kk vv	kk:C-1~G9 vv:1~127(velocity)
Note Off	9n kk 00	kk:C-1~G9
Note Off	8n kk vv	kk:C-1~G9 vv:Ignore
Program Change	Cn vv	00~7F 0~127
Channel Pressure	Dn vv	00~7F 0~127
PitchBend Change	En mm ll	mm:ll= 00:00~40:00~7F:7F
Poly Key Pressure	An kk vv	kk:C-1~G9 vv:1~127
--Control Changes--		
Bank select(MSB)	Bn 00 vv	-> See ProgName list
Bank select(LSB)	Bn 20 vv	
Pitch Modulation (JS+Y)	Bn 01 vv	00~7F 0~127
CutoffModulation (JS-Y)	Bn 02 vv	00~7F 0~127
Panpot	Bn 0A vv	00~40~7F L63~CNT~R63
Expression	Bn 0B vv	00~7F
Volume	Bn 07 vv	00~7F
Hold1 On/Off (Damper)	Bn 40 vv	00~3F:Off, 40~7F:On
Sostenuto	Bn 42 vv	00~3F:Off, 40~7F:On
Soft Pedal	Bn 43 vv	00~3F:Off, 40~7F:On
Harmonic Content	Bn 47 vv	00~7F Color
EG Release Time	Bn 48 vv	00~40~7F :-64~0~+63 (relative)
EG Attack Time	Bn 49 vv	00~40~7F :-64~0~+63 (relative)
Brightness	Bn 4A vv	Filter Cutoff
Reverb Send Level (C Send Level)	Bn 5B vv	00~7F 0~127
Chorus Send Level (D Send Level)	Bn 5D vv	00~7F 0~127
Effect1 Balance	Bn 0C vv	00~7F
Effect2 Balance	Bn 0D vv	00~7F
Portamento Switch	Bn 41 vv	00~7E : Off, 7F:On
Portamento Time (MSB)	Bn 05 vv	00~7F : 0=short,127=long
Portamento Control	Bn 54 kk	00~7F : C-1~G9 source Key

Message	MIDI(Hex)	Description (Value)
NRPN LSB	Bn 62 vv	vv -> See Table 1-2[NRPN]
NRPN MSB	Bn 63 vv	vv -> See Table 1-2[NRPN]
RPN LSB	Bn 64 vv	vv -> See Table 1-1[RPN]
RPN MSB	Bn 65 vv	vv -> See Table 1-1[RPN]
Data entry MSB	Bn 06 vv	00~7F RPN,NRPN value
Data Increment	Bn 60 00	Data Increment MSB value
Data Decrement	Bn 61 00	Data Decrement MSB value

Channel Mode Message		
All Sound off	Bn 78 00	
Reset All Controllers	Bn 79 00	PitchBend Change = Center Pitch Modulation = 0 CutoffModulation = 0 AssignControl 1 = 0 AssignControl 2 = 0 Expression = 0 Portamento = 0 (OFF) Channel Pressure = 0 PolyKey Pressure = 0 (All Key) Hold1(Damper) = 0 (OFF) Sostenuto = 0 (OFF) Soft Pedal = 0 (OFF) NRPN = Null RPN = Null
Local on/off (PC/IF only. not MIDI)	Bn 7A vv	00=ON(effective all part), 7F=OFF Receive if 'n'=EXCL channel
All Note off	Bn 7B 00	
MONO mode ON	Bn 7E 0m	(m=1 only)
POLY mode ON	Bn 7F 00	

*
* Table 1: RPN/NRPN
*

< Table 1-1 : [RPN] >

Message	RPN Number MSB : LSB	Data (MSB)	vv (Hex)
Pitch Bend Sense	00 : 00	vv	00~40~7F -64~0~+63(relative)
Fine Tune	00 : 01	vv	00~40~7F -64~0~+63(relative)
Coarse Tune	00 : 02	vv	00~40~7F -64~0~+63(relative)
RPN Null	7F : 7F	--	

* value LSB has no effect

< Table 1-2 : [NRPN] >

Message	NRPN Number MSB : LSB	Data (MSB)	vv (Hex)
Vibrato Rate	01 : 08	vv	00~40~7F -64~0~+63(relative)
Vibrato Depth	01 : 09	vv	00~40~7F -64~0~+63(relative)
Vibrato Delay	01 : 0A	vv	00~40~7F -64~0~+63(relative)
Filt CutOff	01 : 20	vv	00~40~7F -64~0~+63(relative)
Color	01 : 21	vv	00~40~7F -64~0~+63(relative)
EG Attack Time	01 : 63	vv	00~40~7F -64~0~+63(relative)
EG Decay Time	01 : 64	vv	00~40~7F -64~0~+63(relative)
EG Release Time	01 : 66	vv	00~40~7F -64~0~+63(relative)
Drum Filt CutOff	14 : kk	vv	00~40~7F -64~0~+63(relative)
Drum Filt Color	15 : kk	vv	00~40~7F -64~0~+63(relative)
Drum EG AttackTime	16 : kk	vv	00~40~7F -64~0~+63(relative)
Drum EG Decay Time	17 : kk	vv	00~40~7F -64~0~+63(relative)
Drum Coarse Tune	18 : kk	vv	00~40~7F -64~0~+63(relative)
Drum Fine Tune	19 : kk	vv	00~40~7F -64~0~+63(relative)
Drum Volume	1A : kk	vv	00~7F 0~127 (absolute)
Drum Panpot	1C : kk	vv	00, 01~40~7F (RND,L63~CNT~R63 - absolute)
Drum Rev(C) Send	1D : kk	vv	00~7F 0~127 (absolute)
Drum Cho(D) Send	1E : kk	vv	00~7F 0~127 (absolute)

* kk:Drum Inst No.(0Ch~6Ch : 'C0' ~ 'C8')
* value LSB has no effect

[Universal System Exclusive Message]

Device Inquiry F0,7E,nn,06,01,F7

```

GM Mode ON          F0,7E,nn,09,01,F7
Master Volume       F0,7F,nn,04,01,11,mm,F7    mm : 00~7F
Master Balance      F0,7F,nn,04,02,11,mm,F7    mm : 00~40~7F
                                      (L63~Center~R63)

```

* nn : receive channel 00~0F = Receive if EXCL channel(Global Mode)
 7F = Receive any Channel

* 11 : value LSB has no effect

[Device Inquiry Reply]

Data(HEX)	Val(HEX)	Description
F0		Exclusive Status
7E		Exclusive Non Realtime
0n	0~F	Exclusive Channel (Global Mode)
06		Inquiry Message
02		Identity Reply
42		KORG ID (MANUFACTURERS ID)
42		NS5R ID (FAMILY CODE LSB)
00		(FAMILY CODE MSB)
00		(MEMBER CODE LSB)
00		(MEMBER CODE MSB)
**	00~7F	SYSTEM Minor Version No. (Minor Version LSB)
00		(Minor Version MSB)
**	00~7F	SYSTEM Major Version No. (Major Version LSB)
00		(Major Version MSB)
F7		End of Exclusive

* Transmits when 'Device Inquiry'(F0,7E,nn,06,01,F7) request Received

<Part 2>

KORG NS5R/NX5R Exclusive Data Format (rev 2.1)
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revised by t.oda 2000.05.26
 (set tabsize = 8)

```

*****
* 1. Mode Change (Rx) *
* format: F0,42,3n,42,00,rr,F7 *
* n = EXCL Channel (0~F) *
* rr = mode *
*****

```

< rr >	<reply>	<Rx when>
00h. Global Mode	Success/Error	Always
01h. Multi Mode	Success/Error	Always
02h. Prog Edit Mode	Success/Error	Part Select Prog/Drum
03h. Combi Edit Mode	Success/Error	Part Select Combi
04h. Drum Edit Mode	Success/Error	Part Select Drum
05h. Effect Edit Mode	Success/Error	Always

```

*****
* 2. MAP Change (Rx) *
* format: F0,42,3n,42,01,rr,F7 *
* n = EXCL Channel (0~F) *
* rr = MAP No. *
*****

```

< rr >	<reply>	<Rx when>
00h. Default(GS/XG) Map	None	Multi Mode
01h. 05R/W Map	None	Multi Mode

```

*****
* 3. Data Dump (Rx/Tx) *
* format: F0,42,3n,42,cc,dd,...,ss,F7 *
* n = EXCL Channel (0~F) *
* cc = command *
* dd = datas (7-8) *
* ss = check sum (dd-ss) *
*****

```

<cc>	<Rx reply>	<Rx when>
30h. Global Dump	Success/Error	Always
31h. Current Program Dump	Success/Error	Prog Edit Mode
32h. Current Combination Dump	Success/Error	Combi Edit Mode
33h. Current Drumkit Dump	Success/Error	Drum Edit Mode
34h. Current Effect Dump	Success/Error	Effect Edit Mode
35h. Current Multi Dump	Success/Error	Multi Mode
36h. All Program Dump	Success/Error	Always
37h. All Combination Dump	Success/Error	Always

38h. All User Drum Dump	Success/Error	Always
39h. All Effect Dump	Success/Error	Always
3Ah. All Multi Dump	Success/Error	Always
3Bh. Part Common Parameter Dump	Success/Error	Multi Mode
3Ch. All Part Parameter Dump	Success/Error	Multi Mode

[Dump Data Size]

Global Dump	10 byte	*See Table 4.
Part Common Parameter	152 byte	*See Table 6.
Current Program Dump	158 byte	*See Table 9.
Current CombinationDump	14+(14 * 8) = 126 byte	*See Table 10.
Current DrumKit Dump	14 * 97inst = 1358 byte	*See Table 8.
Current Effect Dump	38 byte	*See Table 3.
Current Multi Dump	92 * 32part = 2944 byte	*See Table 5.
	152 byte	part common parameter
	38 byte	Current Effect parameter
	1358 * 4 = 5432byte	4 Modify Drum parameters
TOTAL :	2944+152+38+5432 = 8566byte	

All Program Dump	158 * 128 = 20224byte	Bank 'PrgU' 128 programs
All Combination Dump	126 * 128 = 16128byte	Bank 'CmbU' 128 combinations
All User Drum Dump	1358 * 2 = 2716byte	User Kit1, Kit2
All Effect Dump	38 * 128 = 4864byte	Bank 'H' 128 Effects
All Multi Dump	8566 * 4 = 34264byte	4 Multi parameters
All Parameter Dump	92 * 32 = 2944byte	32 Part parameters

for MORE Information, See Table 2 ... Table 10.

```
*****
* 4. Dump Request (Rx) *
* format: F0,42,3n,42,cc,F7 *
* n = EXCL Channel (0~F) *
* cc = command *
*****
```

<cc>	<Rx reply>	<Rx when>
20h. Global Dump Request	Global Dump	Always
21h. Current Program Dump Request	Current Program Dump	Prog Edit Mode
22h. Current Combi Dump Request	Current Combi Dump	Combi Edit Mode
23h. Current Drumkit Dump Request	Current Drumkit Dump	Drum Edit Mode
24h. Current Effect Dump Request	Current Effect Dump	Effect Edit Mode
25h. Current Multi Dump Request	Current Multi Dump	Multi Mode
26h. All Program Dump Request	All Program Dump	Always
27h. All Combination Dump Request	All Combination Dump	Always
28h. All User Drumkit Dump Request	All User Drum Dump	Always
29h. All Effect Dump Request	All Effect Dump	Always
2Ah. All Multi Part Dump Request	All Multi Part Dump	Multi Mode
2Bh. Part Common Params Dump Req.	Part Common Params.Dump	Multi Mode
2Ch. All Part Params Dump Req.	All Part Parameter Dump	Multi Mode
10h. Mode Request	Mode Change	Always
11h. MAP type Request	MAP Change	Always
1Fh. Capture LCD image	Capture LCD	NS5R has no job

```
*****
* 5. GS/XG Part Parameters compatible (Rx) *
* format: F0,42,3n,42,12,a1,a2,a3,dd.....,F7 *
* n = EXCL Channel (0~F) *
* a1~a3 = address *
* dd = datas *
*****
```

```
NS5R EXCL: F0,42,3n,42,12,a1,a2,a3,dd...F7
XG EXCL: F0,43,1n,4C,a1,a2,a3...F7
GS EXCL: F0,41,1n,42,12,a1,a2,a3,dd...,ss,F7
```

```
n= NS5R: EXCL channel (30h~3Fh)
XG : Device No. (10h~1Fh)
GS : Device ID (10h~1Fh)
```

```
a1=Address High
a2=Address Mid
a3=Address Low
dd...=Value
ss=check sum --> ((12+a1+a2+a3+dd+....+ss) & 7Fh)=00h
```

<Part Parameters>

[NS5R]	[XG]	[GS]	[Value]	[Description]
00,00,7C	00,00,7F		00	All Parameter Reset
00,00,7D	00,00,7D		00	Drum Setup Reset
00,00,7E	00,00,7E		00	XG System ON ("NS5R" System Reset(Y))
00,00,7F		40,00,7F	00	GS Reset ("NS5R" System Reset(R))

00,00,00	00,00,00	40,00,00	00	MasterTune (bit15-12)	-100.0~0~+100.0[cent]
..... 01	..... 01	..... 01	00-07	MasterTune (bit11- 8)	(0018...07E8)
..... 02	..... 02	..... 02	00-0F	MasterTune (bit 7- 4)	
..... 03	..... 03	..... 03	00-0F	MasterTune (bit 3- 0)	
00,00,04	00,00,04	40,00,04	00-7F	MasterVolume	0~127
00,00,05	00,00,06	40,00,05	00-7F	MasterKeyShift	-24~0~+24[semitone]
00,00,06		40,00,06	01-7F	MasterBalance	L63~CNT~R63
00,00,07			00-7F	Effect Bank MSB	-> See Table 10-2.
..... 08			00-7F	Effect Bank LSB	-> See Table 10-2.
..... 09			00-7F	Effect Number	

[NS5R]	[XG]	[GS]	[Value]	[Description]	
00,01,00			00-02	MIDI Ch. 1	Select Port (A,B,C=EXT)
00,01,01			00-02	MIDI Ch. 2	Select Port (A,B,C=EXT)
00,01,02			00-02	MIDI Ch. 3	Select Port (A,B,C=EXT)
00,01,03			00-02	MIDI Ch. 4	Select Port (A,B,C=EXT)
00,01,04			00-02	MIDI Ch. 5	Select Port (A,B,C=EXT)
00,01,05			00-02	MIDI Ch. 6	Select Port (A,B,C=EXT)
00,01,06			00-02	MIDI Ch. 7	Select Port (A,B,C=EXT)
00,01,07			00-02	MIDI Ch. 8	Select Port (A,B,C=EXT)
00,01,08			00-02	MIDI Ch. 9	Select Port (A,B,C=EXT)
00,01,09			00-02	MIDI Ch. 10	Select Port (A,B,C=EXT)
00,01,0A			00-02	MIDI Ch. 11	Select Port (A,B,C=EXT)
00,01,0B			00-02	MIDI Ch. 12	Select Port (A,B,C=EXT)
00,01,0C			00-02	MIDI Ch. 13	Select Port (A,B,C=EXT)
00,01,0D			00-02	MIDI Ch. 14	Select Port (A,B,C=EXT)
00,01,0E			00-02	MIDI Ch. 15	Select Port (A,B,C=EXT)
00,01,0F			00-02	MIDI Ch. 16	Select Port (A,B,C=EXT)
00,02,00			00-03	Program 1	Select Port (A,B,C=EXT,Ignore)
00,02,01			00-03	Program 2	Select Port (A,B,C=EXT,Ignore)
00,02,02			00-03	Program 3	Select Port (A,B,C=EXT,Ignore)
00,02,03			00-03	Program 4	Select Port (A,B,C=EXT,Ignore)
00,02,7C			00-03	Program 125	Select Port (A,B,C=EXT,Ignore)
00,02,7D			00-03	Program 126	Select Port (A,B,C=EXT,Ignore)
00,02,7E			00-03	Program 127	Select Port (A,B,C=EXT,Ignore)
00,02,7F			00-03	Program 128	Select Port (A,B,C=EXT,Ignore)
01,nn,00	08,nn,01		00-7F	Bank Select MSB	0~127 CC#00
01,nn,01	08,nn,02		00-7F	Bank Select LSB	0~127 CC#32
01,nn,02	08,nn,03		00-7F	Program Change	1~128 -> See ProgName list
----		40,1x,00	00-7F	Bank Select MSB	
----		..... 01		Program Number	1~128 -> See ProgName list
01,nn,08			00-1F,20	Rx Channel	0~15=A1~A16, 16~31=B1~B16, 32=OFF
	08,nn,04		00-1F,7F	Rx Channel	0~15=A1~A16, 16~31=B1~B16,127=OFF
----		40,1x,02	00-0F	Rx Channel	0~15=A1~A16
----		50,1x,02	00-0F	Rx Channel	0~15=B1~B16
01,nn,09	08,nn,05	40,1x,13	00-01	MONO/POLY Mode	0=Mono, 1=Poly
01,nn,0A	08,nn,07		00-05	Part Mode	0=Normal,1=Drum, 2~5=MDrm1~4
----		40,1x,15	00-02	Part Mode	0=Normal,1=MDrm1,MDrm2
----		50,1x,15	00-02	Part Mode	0=Normal,1=MDrm3,MDrm4
01,nn,0B	08,nn,08	40,1x,16	28-58	Coarse Tune	-24~0~+24 [semitone]
01,nn,0C	08,nn,09	40,1x,17	0-F(MSB)	FineTune(0:0~8:0~F:F)	-128~0~127=-12.8[Hz]~+12.7[Hz]
..... 0D	..... 0A	..... 18	0-F(LSB)		
01,nn,10	08,nn,0B	40,1x,19	00-7F	Volume	0~127 CC#07
01,nn,11			00-7F	Expression	0~127 CC#11
01,nn,12	08,nn,0C	40,1x,1A	00-7F	Vel. Sense Depth	0~127
01,nn,13	08,nn,0D	40,1x,1B	00-7F	Vel. Sense Offset	0~127
01,nn,14	08,nn,0E	40,1x,1C	00-40-7F	Panpot	0=RND,1~127=L63~R63 CC#10
01,nn,15	08,nn,0F	40,1x,1D	00-7F	Note Window Bottom	0~127 = C-1~G9
01,nn,16	08,nn,10	40,1x,1E	00-7F	Note Window Top	0~127 = C-1~G9
01,nn,17	08,nn,12	40,1x,21	00-7F	Chorus Send	0~127 CC#93
01,nn,18	08,nn,13	40,1x,22	00-7F	Reverb Send	0~127 CC#91
01,nn,19	08,nn,15	40,1x,30	00-40-7F	Vibrato Frequency	-64~+63 NRPN#1:08(MSB)
01,nn,1A	08,nn,16	40,1x,31	00-40-7F	Vibrato Intensity	-64~+63 NRPN#1:09(MSB)
01,nn,1B	08,nn,17	40,1x,37	00-40-7F	Vibrato Delay	-64~+63 NRPN#1:10(MSB)
01,nn,1C	08,nn,18	40,1x,32	00-40-7F	Filter Cutoff Freq	-64~+63 NRPN#1:32(MSB)
01,nn,1D	08,nn,19	40,1x,33	00-40-7F	Color (Resonance)	-64~+63 NRPN#1:33(MSB)
01,nn,1E	08,nn,1A	40,1x,34	00-40-7F	VDFA EG Attack Time	-64~+63 NRPN#1:99(MSB)
01,nn,1F	08,nn,1B	40,1x,35	00-40-7F	VDFA EG Decay Time	-64~+63 NRPN#1:100(MSB)
01,nn,20	08,nn,1C	40,1x,36	00-40-7F	VDFA EG ReleaseTime	-64~+63 NRPN#1:102(MSB)
01,nn,21	08,nn,30	40,1x,03	00-01	Rx Pitch Bend SW	0=OFF, 1=ON
01,nn,22	08,nn,31	40,1x,04	00-01	Rx Channel After SW	0=OFF, 1=ON

01,nn,23	08,nn,32	40,1x,05	00-01	Rx Program ChangeSW	0=OFF, 1=ON
01,nn,24	08,nn,33	40,1x,06	00-01	Rx Control ChangeSW	0=OFF, 1=ON
01,nn,25	08,nn,34	40,1x,07	00-01	Rx Poly After SW	0=OFF, 1=ON
01,nn,26	08,nn,35	40,1x,08	00-01	Rx Note ON SW	0=OFF, 1=ON
01,nn,27	08,nn,36	40,1x,09	00-01	Rx RPN SW	0=OFF, 1=ON
01,nn,28	08,nn,37	40,1x,0A	00-01	Rx NRPN SW	0=OFF, 1=ON
01,nn,29	08,nn,38	40,1x,0B	00-01	Rx Modulation SW	0=OFF, 1=ON
01,nn,2A	08,nn,39	40,1x,0C	00-01	Rx Volume	0=OFF, 1=ON
01,nn,2B	08,nn,3A	40,1x,0D	00-01	Rx Panpot SW	0=OFF, 1=ON
01,nn,2C	08,nn,3B	40,1x,0E	00-01	Rx Expression SW	0=OFF, 1=ON
01,nn,2D	08,nn,3C	40,1x,0F	00-01	Rx Hold 1 SW	0=OFF, 1=ON
01,nn,2E	08,nn,3D	40,1x,10	00-01	Rx Portamento SW	0=OFF, 1=ON
01,nn,2F	08,nn,3E	40,1x,11	00-01	Rx Sostenuto SW	0=OFF, 1=ON
01,nn,30	08,nn,3F	40,1x,12	00-01	Rx Soft Pedal SW	0=OFF, 1=ON
01,nn,31	08,nn,40	40,1x,23	00-01	Rx BankSelect SW	0=OFF, 1=ON

<Part Parameters>

[NS5R]	[XG]	[GS]	[Value]	[Description]	
01,nn,32	08,nn,41	40,1x,40	00-40-7F	Scale C	-64..+63[cent]
01,nn,33	08,nn,42	40,1x,41	00-40-7F	Scale C#	-64..+63[cent]
01,nn,34	08,nn,43	40,1x,42	00-40-7F	Scale D	-64..+63[cent]
01,nn,35	08,nn,44	40,1x,43	00-40-7F	Scale D#	-64..+63[cent]
01,nn,36	08,nn,45	40,1x,44	00-40-7F	Scale E	-64..+63[cent]
01,nn,37	08,nn,46	40,1x,45	00-40-7F	Scale F	-64..+63[cent]
01,nn,38	08,nn,47	40,1x,46	00-40-7F	Scale F#	-64..+63[cent]
01,nn,39	08,nn,48	40,1x,47	00-40-7F	Scale G	-64..+63[cent]
01,nn,3A	08,nn,49	40,1x,48	00-40-7F	Scale G#	-64..+63[cent]
01,nn,3B	08,nn,4A	40,1x,49	00-40-7F	Scale A	-64..+63[cent]
01,nn,3C	08,nn,4B	40,1x,4A	00-40-7F	Scale A#	-64..+63[cent]
01,nn,3D	08,nn,4C	40,1x,4B	00-40-7F	Scale B	-64..+63[cent]
01,nn,3E	08,nn,59	40,1x,1F	00-5F	AC1 Number	CC#0~CC#95
01,nn,3F	08,nn,60	40,1x,20	00-5F	AC2 Number	CC#0~CC#95
01,nn,40	08,nn,1D	40,2x,00	28-40-58	MOD Pitch Control	-24~0~+24[semitone]
01,nn,41	08,nn,1E	40,2x,01	00-40-7F	MOD Filt Control	-64~+63
01,nn,42	08,nn,1F	40,2x,02	00-40-7F	MOD Amp Control	-64~+63
01,nn,43		40,2x,03	00-40-7F	MOD LFO Rate	-64~+63
01,nn,44	08,nn,20	40,2x,04	00-7F	MOD LFO Pitch Depth	0~127
01,nn,45	08,nn,21	40,2x,05	00-7F	MOD LFO VDF Depth	0~127
01,nn,46	08,nn,22	40,2x,06	00-7F	MOD LFO VDA Depth	0~127
01,nn,48	08,nn,23	40,2x,10	28-40-58	Bend Pitch Control	-24~0~+24[semitone]
01,nn,49	08,nn,24	40,2x,11	00-40-7F	Bend Filt Control	-64~+63
01,nn,4A	08,nn,25	40,2x,12	00-40-7F	Bend Amp Control	-64~+63
01,nn,4B		40,2x,13	00-40-7F	Bend LFO Rate	-64~+63
01,nn,4C	08,nn,26	40,2x,14	00-7F	Bend LFO PitchDepth	0~127
01,nn,4D	08,nn,27	40,2x,15	00-7F	Bend LFO VDF Depth	0~127
01,nn,4E	08,nn,28	40,2x,16	00-7F	Bend LFO VDA Depth	0~127
01,nn,50	08,nn,4D	40,2x,20	28-40-58	CAf Pitch Control	-24~0~+24[semitone]
01,nn,51	08,nn,4E	40,2x,21	00-40-7F	CAf Filt Control	-64~+63
01,nn,52	08,nn,4F	40,2x,22	00-40-7F	CAf Amp Control	-64~+63
01,nn,53		40,2x,23	00-40-7F	CAf LFO Rate	-64~+63
01,nn,54	08,nn,50	40,2x,24	00-7F	CAf LFO Pitch Depth	0~127
01,nn,55	08,nn,51	40,2x,25	00-7F	CAf LFO VDF Depth	0~127
01,nn,56	08,nn,52	40,2x,26	00-7F	CAf LFO VDA Depth	0~127
01,nn,58	08,nn,53	40,2x,30	28-40-58	PAf Pitch Control	-24~0~+24[semitone]
01,nn,59	08,nn,54	40,2x,31	00-40-7F	PAf Filt Control	-64~+63
01,nn,5A	08,nn,55	40,2x,32	00-40-7F	PAf Amp Control	-64~+63
01,nn,5B		40,2x,33	00-40-7F	PAf LFO Rate	-64~+63
01,nn,5C	08,nn,56	40,2x,34	00-7F	PAf LFO Pitch Depth	0~127
01,nn,5D	08,nn,57	40,2x,35	00-7F	PAf LFO VDF Depth	0~127
01,nn,5E	08,nn,58	40,2x,36	00-7F	PAf LFO VDA Depth	0~127
01,nn,60	08,nn,5A	40,2x,40	28-40-58	AC1 Pitch Control	-24~0~+24[semitone]
01,nn,61	08,nn,5B	40,2x,41	00-40-7F	AC1 Filt Control	-64~+63
01,nn,62	08,nn,5C	40,2x,42	00-40-7F	AC1 Amp Control	-64~+63
01,nn,63		40,2x,43	00-40-7F	AC1 LFO Rate	-64~+63
01,nn,64	08,nn,5D	40,2x,44	00-7F	AC1 LFO Pitch Depth	0~127
01,nn,65	08,nn,5E	40,2x,45	00-7F	AC1 LFO VDF Depth	0~127
01,nn,66	08,nn,5F	40,2x,46	00-7F	AC1 LFO VDA Depth	0~127
01,nn,68	08,nn,61	40,2x,50	28-40-58	AC2 Pitch Control	-24~0~+24[semitone]
01,nn,69	08,nn,62	40,2x,51	00-40-7F	AC2 Filt Control	-64~0~63
01,nn,6A	08,nn,63	40,2x,52	00-40-7F	AC2 Amp Control	-64~0~63
01,nn,6B		40,2x,53	00-40-7F	AC2 LFO Rate	-64~0~63
01,nn,6C	08,nn,64	40,2x,54	00-7F	AC2 LFO Pitch Depth	0~127
01,nn,6D	08,nn,65	40,2x,55	00=7F	AC2 LFO VDF Depth	0~127
01,nn,6E	08,nn,66	40,2x,56	00-7F	AC2 LFO VDA Depth	0~127
01,nn,70	08,nn,67		00-01	Portamento Switch	0=OFF, 1=ON
01,nn,71	08,nn,68		00-7F	Portamento Time	0~127
01,nn,72	08,nn,69		00-40-7F	Pitch EG Stt. Level	-64~0~63
01,nn,73	08,nn,6A		00-40-7F	Pitch EG Att. Time	-64~0~63

01,nn,74	08,nn,6B	00-40-7F	Pitch EG Rel. Level	-64~0~63
01,nn,75	08,nn,6C	00-40-7F	Pitch EG Rel. Time	-64~0~63
01,nn,76	08,nn,6D	01-7F	Vel. Window Bottom	1~127
01,nn,77	08,nn,6E	01-7F	Vel. Window Top	1~127

nn = Part Number

00h = Part 01
 01h = Part 02
 .
 .
 1Fh = Part 32

x = GS Block Number

Type [40,**,**]	Type [50,**,**]
0 = Part 10	0 = Part 26
1 = Part 1	1 = Part 17
2 = Part 2	2 = Part 18
.	.
.	.
9 = Part 9	9 = Part 32

* CAf = Channel After Touch
 * PAF = Polyphonic After Touch
 * AC1 = Assignable Controller 1
 * AC2 = Assignable Controller 2

<Drum Parameters>

[NS5R]	[XG]	[GS]	[Value]	[Description]	
3n,rr,00	3n,rr,00		00-40-7F	Coarse Tune	-64~0~+63[semitone] NRPN#24:rr(MSB)
3n,rr,01	3n,rr,01		00-40-7F	Fine Tune	-64~0~+63[cent] NRPN#25:rr(MSB)
3n,rr,02	3n,rr,02	41,m2,rr	00-7F	Level	0~127 NRPN#26:rr(MSB)
3n,rr,03	3n,rr,03	41,m3,rr	00-7F	Excl Group	0=OFF, 1~127
3n,rr,04	3n,rr,04	41,m4,rr	00-40-7F	Panpot	0,1~64~127 NRPN#28:rr(MSB)
					(RND,L63~CNT~R63)
3n,rr,05	3n,rr,05	41,m5,rr	00-7F	Reverb Send	0~127 NRPN#29:rr(MSB)
3n,rr,06	3n,rr,06	41,m6,rr	00-7F	Chorus Send	0~127 NRPN#30:rr(MSB)
3n,rr,08	3n,rr,08		00-01	Key Assign Mode	0=Single, 1=Multi
3n,rr,09	3n,rr,09	41,m7,rr	00-01	Receive Note OFF	0=OFF, 1=ON
3n,rr,0A	3n,rr,0A	41,m8,rr	00-01	Receive Note ON	0=OFF, 1=ON
3n,rr,0B	3n,rr,0B		00-40-7F	Cutoff	-64~0~+63 NRPN#20:rr(MSB)
3n,rr,0C	3n,rr,0C		00-40-7F	Color	-64~0~+63 NRPN#21:rr(MSB)
3n,rr,0D	3n,rr,0D		00-40-7F	Attack Time	-64~0~+63 NRPN#22:rr(MSB)
3n,rr,0E	3n,rr,0E		00-40-7F	Decay time	-64~0~+63 NRPN#23:rr(MSB)

* m=MDrm1~2(0~1)
 * n=MDrm1~4(0~3)
 * rr=note number(0Ch~6Ch='C0'~'C8')

<Display>

NS5R EXCL: F0,42,3n,42,12,a1,a2,a3,dd...F7
 XG EXCL: F0,43,1n,4C,a1,a2,a3,dd...F7
 GS EXCL: F0,41,1x,45,12,a1,a2,a3,dd...,ss,F7

[NS5R]	[XG]	[GS]	[Value]	[Description]	
08,00,00	06,00,00	10,00,00	20-7F	Display Letter 0	(max 32 chars)
.	
.	
08,00,1F	06,00,1F	10,00,1F	20-7F	Display Letter 31	
----	07,00,00		00-7F	Display Bitmap Data 0	(16 x 16 dots)
.	
.	
----	07,00,2F		00-7F	Display Bitmap Data 47	(16 x 16 dots)
----		10,0p,40	00-1F	Display Bitmap Data 0	
.	
.	
----		10,0p,7F	00-1F	Display Bitmap Data 63	
08,00,20			00-7F	Display Bitmap Data 0	(32 x 16 dots)
.	

```

      .
      .
08,00,7F |      |      |      |      |
      .      .      .      .
00-7F | Display Bitmap Data 79

```

```

*****
* 6. Write Request (Rx) *
*   format: F0,42,3n,42,cc,ll,F7 *
*       n = EXCL Channel (0~F) *
*       cc = command *
*       ll = destination No. *
*****

```

<cc>	<Rx reply>	<Rx when>
41h. Program Write	Success/Error	Prog Edit Mode
42h. Combination Write	Success/Error	Combi Edit Mode
43h. Drum Write	Success/Error	Drum Edit Mode
44h. Effect Write	Success/Error	Effect Edit Mode
45h. Multi Write	Success/Error	Multi Mode

```

*****
* 7. Exclusive Dump Reply (Tx) *
*   format: F0,42,3n,42,0E,rr,dd,F7 *
*       n = EXCL Channel (0~F) *
*       rr = reply answer *
*       dd = received EXCL command No. *
*****

```

<rr>	<Tx when>
00h. Success END	Dump Receive Success
01h. Checksum Error	Receive Dump/KORG Frme Draw Data
02h. Invalid conditions	Write Protect. etc..
03h. Invalid value	Invalid Value

(No reply when an unknown format command received...)

```

*****
* 8. Parameter Change (Rx) *
*   format: F0,42,3n,42,08,ll,mm,dd,ee,F7 *
*       n = EXCL Channel (0~F) *
*       ll = parameter No. LSB *
*       mm = parameter No. MSB *
*       dd = data LSB (value bit0~ 6) *
*       ee = data MSB (value bit7~13) *
*****

```

```

<Receive/Transmit in Edit Mode>
Multi Mode      : Multi Utility Control
Global Mode     : Global Parameter Change
Program Edit Mode : Program Parameter Change
Combination Edit Mode: Combination Parameter Change
Drumkit Edit Mode : Drumkit Parameter Change
Effect Edit Mode  : Effect Parameter Change

```

<Multi Mode Parameter Change>

<Parameter No.(MSB) = 0>

ParamNo.(LSB)	name	value	description
0	Change Part	0~31	Part Number(0=Part1~31=Part32)
1	Select Multi	0~3	Backup Multi Number (0:Multi1 ... 3:Multi4)

<Global Mode Parameter Change>

<Parameter No.(MSB) = 0>

ParamNo.(LSB)	name	offset	value	description
0	PC/IF BPS	0	0,1	0=31.25, 1=38.4
1	Bank Map Type	1	0,1	0=XG/GS, 1=05R/W
2	Exclusive Channel	2	0~15	Channel 1~16
3	Prog MemProtect	3(bit0)	0,1	0=OFF, 1=ON
4	Combi MemProtect	3(bit1)	0,1	0=OFF, 1=ON
5	DrumKit MemProtect	3(bit2)	0,1	0=OFF, 1=ON
6	Effect MemProtect	3(bit3)	0,1	0=OFF, 1=ON
7	Boot by Multi Set #1	3(bit4)	0,1	0=OFF, 1=ON
8	PC/IF setting	3(bit5)	0,1	0=Native, 1=Emulate
9	GM_ON Back Color	4(bit0)	0,1	0=Green, 1=Orange
10	GS_Reset Back Color	4(bit1)	0,1	0=Green, 1=Orange
11	XG_ON Back Color	4(bit2)	0,1	0=Green, 1=Orange
12	Receive GM_ON SW	5(bit0)	0,1	0=OFF, 1=ON
13	Receive GS_Reset SW	5(bit1)	0,1	0=OFF, 1=ON
14	Receive XG_ON SW	5(bit2)	0,1	0=OFF, 1=ON
15	Tone ON Key Note	6	0~11	'C'~'B'
16	Tone ON Key Velocity	7	1~127	1~127

17	LCD contrast	8	0~31	1~32
18	Effect Follow	9	0,1~32	0=OFF,1~32=Part1~32

<Program Edit Mode Parameter Change>

Parameter No.(MSB)	
0	Program Name,OSC Mode
1	OSC 1
2	OSC 2

<Parameter No.(MSB) = 0>

ParameterNo.(LSB)	name	offset	value	description
0	Program Name	0	20h~7Fh	ASCII character
9	Program Name	9	20h~7Fh	ASCII character
10	OSC Mode	10	0~3	0:Single Prog 1:Double Prog 2:Drum
11	Own FX BankMSB	11	0~127	-> See Table 10-2.
12	Own FX BankLSB	12	0~127	-> See Table 10-2.
13	Own FX Number	13	0~127	

<Parameter No.(MSB) = 1(OSC1) >

ParamNo.(LSB)	name	offset	value	description
Oscillator 1				
0	MultiSound No.	14(MSB) 15(LSB)	0~527	
1	Octave	16	0~3 (-24,-12,+0,+12)	`32, `16, `8, `4
2	OSC Level	17	0~127	
3	Coarse Tune	18	-12~+12 [semitone]	
4	Fine Tune	19	-99~+99 [cent]	
5	Pitch Slope	20	-10~+20	-1.0 ~ +2.0 step 0.1
6	Vel Win Bottom	21	1~127	
7	Vel Win Top	22	1~127	
8	OSC Delay Start	23	0~127	
Pitch MG				
9	Wave Form	24	0~ 5	TRI,SawUp,SawDn,Sqr1,Sqr2,Rnd
10	Frequency	25	0~127	
11	Delay	26	0~127	
12	FadeIn	27	0~127	
13	Intensity	28	0~127	
Pitch EG				
14	Intensity	29	-128~127	Intensity by Velocity Sense
15	Level VelSense	30	-128~127	Level by Velocity Sense
16	Time VelSense	31	-128~127	Time by Velocity Sense
17	Start Level	32	-128~127	Pitch EG Start Level
18	Attack Time	33	0~127	Pitch EG Attack Time
19	Attack Level	34	-128~127	Pitch EG Attack Level
20	Decay Time	35	0~127	Pitch EG Decay Time
21	Release Time	36	0~127	Pitch EG Release Time
22	Release Level	37	-128~127	Pitch EG Release Level
VDF MG				
23	Wave Form	38	0~ 5	TRI,SawUp,SawDown,Sqr1,Sqr2,Randm
24	Frequency	39	0~127	
25	Delay	40	0~127	
26	FadeIn	41	0~127	
27	Intensity	42	0~127	
28	VDF Cutoff	43	0~127	Cutoff Fc
VDF Keyboard Track				
29	Center Key	44	0~127	C-1 ~ G9
30	Traking Mode	45	0~ 3	OFF,LOW,HIGH,ALL
31	Fc Intensity	46	-128~127	Cutoff Tracking Intensity
32	EG Time	47	-128~127	VDF EGTime Tracking Intensity
33	Att_Time Sw/Pol	48(bit0,4)	0,1,2	0=OFF,1=ON+,2=ON- (0:OFF/ON, 4:+/-)
34	Dcy_Time Sw/Pol	48(bit1,5)	0,1,2	0=OFF,1=ON+,2=ON- (1:OFF/ON, 5:+/-)
35	Slp_Time Sw/Pol	48(bit2,6)	0,1,2	0=OFF,1=ON+,2=ON- (2:OFF/ON, 6:+/-)

36	Rel_Time Sw/Pol	48(bit3,7)	0,1,2	0=OFF,1=ON+,2=ON- (3:OFF/ON, 7:+/-)
----	-----------------	------------	-------	-------------------------------------

Color				
-------	--	--	--	--

37	Intensity	49	0~127	
38	Velocity Sense	50	-128~127	

VDF EG				
--------	--	--	--	--

39	Intensity	51	-128~127	VDF EG Intensity
40	IntVelSense	52	-128~127	VDF EG Intensity by Velocity
41	TimeVelSense	53	0~127	VDF EG Time by Velocity
42	Att_Time Sw/Pol	54(bit0,4)	0,1,2	0=OFF,1=ON+,2=ON- (0:OFF/ON, 4:+/-)
43	Dcy_Time Sw/Pol	54(bit1,5)	0,1,2	0=OFF,1=ON+,2=ON- (1:OFF/ON, 5:+/-)
44	Slp_Time Sw/Pol	54(bit2,6)	0,1,2	0=OFF,1=ON+,2=ON- (2:OFF/ON, 6:+/-)
45	Rel_Time Sw/Pol	54(bit3,7)	0,1,2	0=OFF,1=ON+,2=ON- (3:OFF/ON, 7:+/-)
46	Attack Time	55	0~127	VDF EG Attack Time
47	Attack Level	56	-128~127	VDF EG Attack Level
48	Decay Time	57	0~127	VDF EG Decay Time
49	Break Point	58	-128~127	VDF EG Break Point
50	Slope Time	59	0~127	VDF EG Slope Time
51	Sustain Level	60	-128~127	VDF EG Sustain Level
52	Release Time	61	0~127	VDF EG Release Time
53	Release Level	62	-128~127	VDF EG Release Level

VDA MG				
--------	--	--	--	--

54	Wave Form	63	0~ 5	TRI, SawUp, SawDown, Sqr1, Sqr2, Randm
55	Frequency	64	0~127	
56	Delay	65	0~127	
57	FadeIn	66	0~127	
58	Intensity	67	0~127	

VDA Keyboard Track				
--------------------	--	--	--	--

59	Center Key	68	0~127	C-1 ~ G9
60	Tracking Mode	69	0~ 3	OFF, LOW, HIGH, ALL
61	Amp Intensity	70	-128~127	Amp Tracking Intensity
62	EG Time	71	-128~127	VDA EGTime Tracking Intensity
63	Att_Time Sw/Pol	72(bit0,4)	0,1,2	0=OFF,1=ON+,2=ON- (0:OFF/ON, 4:+/-)
64	Dcy_Time Sw/Pol	72(bit1,5)	0,1,2	0=OFF,1=ON+,2=ON- (1:OFF/ON, 5:+/-)
65	Slp_Time Sw/Pol	72(bit2,6)	0,1,2	0=OFF,1=ON+,2=ON- (2:OFF/ON, 6:+/-)
66	Rel_Time Sw/Pol	72(bit3,7)	0,1,2	0=OFF,1=ON+,2=ON- (3:OFF/ON, 7:+/-)

VDA EG				
--------	--	--	--	--

67	LevelVelSense	73	-128~127	EG Level by Velocity
68	TimeVelSense	74	-128~127	VDA EG Time by Velocity
69	Att_Time Sw/Pol	75(bit0,4)	0,1,2	0=OFF,1=ON+,2=ON- (0:OFF/ON, 4:+/-)
70	Dcy_Time Sw/Pol	75(bit1,5)	0,1,2	0=OFF,1=ON+,2=ON- (1:OFF/ON, 5:+/-)
71	Slp_Time Sw/Pol	75(bit2,6)	0,1,2	0=OFF,1=ON+,2=ON- (2:OFF/ON, 6:+/-)
72	Rel_Time Sw/Pol	75(bit3,7)	0,1,2	0=OFF,1=ON+,2=ON- (3:OFF/ON, 7:+/-)
73	Attack Time	76	0~127	VDA EG Attack Time
74	Attack Level	77	0~127	VDA EG Attack Level
75	Decay Time	78	0~127	VDA EG Decay Time
76	Break Point	79	0~127	VDA EG Break Point
77	Slope Time	80	0~127	VDA EG Slope Time
78	Sustain Level	81	0~127	VDA EG Sustain Level
79	Release Time	82	0~127	VDA EG Release Time

Own Effect Parameter				
----------------------	--	--	--	--

80	Own FX A/B pan	83	1~64~127	L63~CNT~R63
81	Own FX C send	84	0~127	
82	Own FX D send	85	0~127	

<Parameter No.(MSB) = 2(OSC2) >

Oscillator 2				
--------------	--	--	--	--

ParamNo.(LSB)	name	offset	value	description
0		86		
.		.		
.		.	(same as OSC 1 Parameters)	
.		.		
82		157		

<Combination Edit Mode Parameter Change>

Parameter No.(MSB)		
0	Program Name	
1	Timbre 1	
2	Timbre 2	
3	Timbre 3	
4	Timbre 4	
5	Timbre 5	
6	Timbre 6	
7	Timbre 7	
8	Timbre 8	

<Parameter No.(MSB) = 0>

Parameter No. (LSB)	name	value	description
0	Program Name	20h~7Fh	ASCII character
.	.	.	.
9	Program Name	20h~7Fh	ASCII character
10	Own FX BankMSB		-> See Table 10-2.
11	Own FX BankLSB		-> See Table 10-2.
12	Own FX Number	00h~7Fh	001~128

<Parameter No.(MSB) = 1~8>

Parameter No. (LSB)	name	value	description
0	Bank No.	0~74	-> See following table
1	Program No.	0~127	
2	Volume	0~127	
3	Panpot	0,1~64~127	RND,L63~CNT~R63
4	Reverb Send	0~127	
5	Chorus Send	0~127	
6	Note Win Bottom	0~127	C-1~G9
7	Note Win Top	0~127	C-1~G9
8	Vel Win Bottom	1~127	
9	Vel Win Top	1~127	
10	Transpose	-24~24(E8h~18h)	[semitone]
11	Detune	-50~50(CEh~32h)	[cent]
12	Note ON/OFF Sw	0,1	0=OFF 1=ON
13	CntrolChange Sw	0,1	0=OFF 1=ON
14	Pitch Bend Sw	0,1	0=OFF 1=ON
15	After Touch Sw	0,1	0=OFF 1=ON (Channl/Poly)
16	Damper Sw	0,1	0=OFF 1=ON
17	Portamento Sw	0,1	0=OFF 1=ON

Parameter No.(LSB) = 0 : Bank No.

0 ~ 9	GM-a, r:01, r:02, r:03, r:04, r:05, r:06, r:07, r:08, r:09
10 ~19	r:10, r:11, r:16, r:17, r:18, r:19, r:24, r:25, r:26, r:32
20 ~29	r:33, r:40, r:CM, y:01, y:03, y:06, y:08, y:12, y:14, y:16
30 ~39	y:17, y:18, y:19, y:20, y:24, y:25, y:27, y:28, y:32, y:33
40 ~49	y:34, y:35, y:36, y:37, y:38, y:39, y:40, y:41, y:42, y:43
50 ~59	y:45, y:64, y:65, y:66, y:67, y:68, y:69, y:70, y:71, y:72
60 ~69	y:96, y:97, y:98, y:99, y:100, y:101, y:SFX, GM-b, PrgU, PrgA
70 ~74	PrgB, PrgC, yDr2, rDrm, kDrm

<DrumKit Edit Mode Parameter Change>

Parameter No.(MSB)										
	C0~	C1~	C2~	C3~	C4~	C5~	C6~	C7~	C8~	
C	12	24	36	48	60	72	84	96	108	
C#	13	25	37	49	61	73	85	97	-	
D	14	26	38	50	62	74	86	98	-	
D#	15	27	39	51	63	75	87	99	-	
E	16	28	40	52	64	76	88	100	-	
F	17	29	41	53	65	77	89	101	-	
F#	18	30	42	54	66	78	90	102	-	
G	19	31	43	55	67	79	91	103	-	
G#	20	32	44	56	68	80	92	104	-	
A	21	33	45	57	69	81	93	105	-	
A#	22	34	46	58	70	82	94	106	-	
B	23	35	47	59	71	83	95	107	-	

ParamNo. (LSB)	name	description
0	Instrument No.	0~285
1	Coarse Tune	-64~+63 [Semitone]
2	Fine Tune	-64~+63 [Cent]
3	Level	0~127
4	Exclusive Group	0=OFF, 1..127=Group No.
5	Note ON Switch	0=OFF 1=ON
6	Note OFF Switch	0=OFF 1=ON
7	Assign Mode	0=Single 1=Multi
8	Relative Cutoff	-64~63
9	Relative Color	-64~63
10	Rel Attack Time	-64~63
11	Rel Decay Time	-64~63
12	Panpot	0=Random, 1=L63~64=CNT~127=R63
13	Reverb Send	0~127
14	Chorus Send	0~127

<Effect Edit Mode Parameter Change>

<Parameter No.(MSB) = 0>

ParameterNo. (LSB)	name	value	description
0~7	Effect Name	20h~7Fh	
8	Effect 1 Type	0,1~47	OFF,1~47
9	Effect 2 Type	0,1~47	OFF,1~47
10	Effect 1 OFF/ON	0,1	OFF,ON
11	Effect 2 OFF/ON	0,1	OFF,ON
12	Out-3 Pan(seri,paral/2)	0,1~101	OFF,R~L
13	Out-4 Pan(seri,paral/2)	0,1~101	OFF,R~L
14	Out-1 Level L(para3)	0~9	
15	Out-1 Level R(para3)	0~9	
16	Out-2 Level L(para3)	0~9	
17	Out-2 Level R(para3)	0~9	
18	Effect Placement	0~3	

<Effect 1 Parameter : Parameter No.(MSB) = 1>

ParameterNo. (LSB)	name	value	description
0	Dynamic Mod Source	0~6	NONE,JS(+Y),JS(-Y),AFTR.T PEDAL1,PEDAL2,VDA-EG
1	Dynamic Mod Depth	-15~15	
2	DRY:EFF Balance 1	0~100	DRY~EFF (Fx:1~47)
3	DRY:EFF Balance 2	0~100	DRY~EFF (Fx:40~43,46,47)
4	Parameter 1	-> See Table 3.	
5	Parameter 2	(47 Effect Parameters)	
6	Parameter 3		
7	Parameter 4		
8	Parameter 5		
9	Parameter 6		
10	Parameter 7		
11	Parameter 8		

<Effect 2 Parameter : Parameter No.(MSB) = 2>

ParameterNo. (LSB)	name	value	description
0	Dynamic Mod Source	0~6	NONE,JS(+Y),JS(-Y),AFTR.T PEDAL1,PEDAL2,VDA-EG
1	Dynamic Mod Depth	-15~15	
2	DRY:EFF Balance 1	0~100	DRY~EFF (Fx:1~47)
3	DRY:EFF Balance 2	0~100	DRY~EFF (Fx:40~43,46,47)
4	Parameter 1	-> See Table 3.	
5	Parameter 2	(47 Effect Parameters)	
6	Parameter 3		
7	Parameter 4		
8	Parameter 5		
9	Parameter 6		
10	Parameter 7		
11	Parameter 8		

```
*****
* 9. LCD BackLight Color (Rx) *
* format: F0,42,3n,42,7D,vv,F7 *
* n = EXCL Channel (0~F) *
*****
```

```

*          vv = Color (0=Green, 1=Orange, 2=Red)          *
*****
<rr>          <Rx when>
00h.    BackLight Green          Always
01h.    BackLight Orange         Always
02h.    BackLight Red            Always

*****
* 10. Remote Switch (Rx)          *
*   format: F0,42,3n,42,7E,rr,F7  *
*       n = EXCL Channel (0~F)    *
*       rr = SW No.(value)        *
*****
<rr>          <Rx when>
01h.    Tone ON                  Always
02h.    Tone OFF                 Always
03h.    Page/Part--              Always
04h.    Page/Part++              Always
05h.    Param--                  Always
06h.    Param++                  Always
07h.    Demo/Compare             Always
08h.    Mute/Write               Always
09h.    Disp/Exit                Always
0Ah.    Edit                     Always
0Bh.    Full Edit                Always
10~47h. Encoder -56 ~ -1         Always
48~7Fh. Encoder +1 ~ +56         Always

*****
* 11. Capture LCD Data (Tx)      *
*   format: F0,42,3n,42,7F,dd,...,ss,F7  *
*       n = EXCL Channel (0~F)    *
*       dd = datas (7-8) 720byte -> 823byte  *
*       ss = check sum (((dd+...+ss)*(-1)) & 7Fh)  *
*****

Reply 'Capture LCD image request' (F0,42,3n,42,1F,F7)

*****
* 12. 05R/W Multi SetUp(Compatible) (Rx)  *
*   format: F0,42,3n,36,55,00,dd,...,F7  *
*       n = EXCL Channel (0~F)    *
*       dd = data (7-8) 29byte -> 34byte  *
*****
Multi Setup Dump(05R/W)          <reply>          <Rx when>
                                   None              Multi Mode

```

```

*****
*
* Table 2: Effect Parameter Dump ( 38 byte )
*
*****

```

offset(HEX)	name	value	description
00~07	Effect Name	20h~7Fh	(ASCII chara)
08	Effect 1 Type	0,1~47	OFF,1~47
09	Effect 2 Type	0,1~47	OFF,1~47
0A	Effect 1 L-Ch Balance	0~100	
0B	Effect 1 R-Ch Balance	0~100	
0C	Effect 2 L-Ch Balance	0~100	
0D	Effect 2 R-Ch Balance	0~100	
If Effect Placement = SERIAL/PARA1/PARA2			
0E	Output 3 PAN	0=OFF,1=R,2=01:99,...100=99:01	
0F	Output 4 PAN	0=OFF,1=R,2=01:99,...100=99:01	
If Effect Placement = PARA3			
0E	Out1 Rch Level	bit0~3: 0~9	
	Out1 Lch Level	bit4~7: 0~9	
0F	Out2 Rch Level	bit0~3: 0~9	
	Out2 Lch Level	bit4~7: 0~9	
10	Effect I/O	bit0 :Effect1 Lch.(0,1=OFF,ON)	

		bit1 :Effect1 Rch.(0,1=OFF,ON) bit2 :Effect2 Lch.(0,1=OFF,ON) bit3 :Effect2 Rch.(0,1=OFF,ON) bit4~5:Effect Placement (0~3=Serial,Para1,Para2,Para3)
11~18	Effect 1 Parameter	(--> see Table 3: Type01~47)
19	Effect 1 Mod Source	0~6 0=NONE 1=JoyStick(+Y) 2=JoyStick(-Y) 3=AfterTouch 4=Assign Pedal1 5=Assign Pedal2 6=VDA EG
1A	Effect 1 Mod Amount	-15 ~ +15 (F1h~0Fh)
1B~22	Effect 2 Parameter	(--> see Table 3: Type01~47)
23	Effect 2 Mod Source	0~6 0=NONE 1=JoyStick(+Y) 2=JoyStick(-Y) 3=AfterTouch 4=Assign Pedal1 5=Assign Pedal2 6=VDA EG
24	Effect 2 Mod Amount	-15 ~ +15 (F1h~0Fh)
25	(dummy byte)	

```

*****
*
*   Table 3: 47 Type of Effect Parameters ( 8 byte )
*
*****

```

Type 01:Hall, 02:Ens.Hall, 03:ConcertHL

Offset(ParaNo.LSB)	name	value	data(Hex)
0 (04)	Reverb Time	0.2~9.9[sec]	00..61
2 (06)	High Damp	0~99[%]	00..63
3 (07)	Pre Delay	0~200[ms]	00..C8
4 (08)	E.R Level	0~99	00..63
6 (10)	EQ.High	-12~+12[dB]	F4..0C
7 (11)	EQ.Low	-12~+12[dB]	F4..0C

Type 04:Room, 05:LargeRoom, 06:LiveStage

Offset(ParaNo.LSB)	name	value	data(Hex)
0 (04)	Reverb Time	0.2~4.9[sec]	00..2F
2 (06)	High Damp	0~99[%]	00..63
3 (07)	Pre Delay	0~200[ms]	00..C8
4 (08)	E.R Level	0~99	00..63
6 (10)	EQ.High	-12~+12[dB]	F4..0C
7 (11)	EQ.Low	-12~+12[dB]	F4..0C

Type 07:WetPlate, 08:DryPlate, 09:Spring

Offset(ParaNo.LSB)	name	value	data(Hex)
0 (04)	Pre Delay	0~200[ms]	00..C8
2 (06)	E.R Level	1~10	01..0A
3 (07)	Reverb Time	00~99	00..63
4 (08)	High Damp	0~99[%]	00..63
6 (10)	EQ.Low	-12~+12[dB]	F4..0C
7 (11)	EQ.High	-12~+12[dB]	F4..0C

Type 10:EarlyRef1, 11:EarlyRef2, 12:EarlyRef3

Offset(ParaNo.LSB)	name	value	data(Hex)
0 (04)	E.R Time	100..800	00..46
1 (05)	Pre Delay	0~200[ms]	00..C8
6 (10)	EQ.High	-12~+12[dB]	F4..0C
7 (11)	EQ.Low	-12~+12[dB]	F4..0C

Type 13:StereoDelay, 14:CrossDelay

Offset(ParaNo.LSB)	name	value	data(Hex)
0 (04)	DelayTime L(Lo)	000..500	00..1F4
1 (05)	DelayTime L(Hi)		
2 (06)	FeedBack	-99..+99	9D..63
3 (07)	High Damp	0~99[%]	00..63
4 (08)	DelayTime R(Lo)	000..500	00..1F4
5 (09)	DelayTime R(Hi)		
6 (10)	EQ.High	-12~+12[dB]	F4..0C
7 (11)	EQ.Low	-12~+12[dB]	F4..0C

Type 15:DualDelay

Offset(ParaNo.LSB)	name	value	data(Hex)
0 (04)	DelayTime L(Lo)	000..500	00..1F4
1 (05)	DelayTime L(Hi)		
2 (06)	FeedBack L	-99..+99	9D..63
3 (07)	High Damp L	0~99[%]	00..63
4 (08)	DelayTime R(Lo)	000..500	00..1F4
5 (09)	DelayTime R(Hi)		
6 (10)	FeedBack R	-99..+99	9D..63
7 (11)	High Damp R	0~99[%]	00..63

Type 16:M.TapDly1, 17:M.TapDly2, 18:M.TapDly3

Offset(ParaNo.LSB)	name	value	data(Hex)
0 (04)	DelayTime 1(Lo)	000..500	00..1F4
1 (05)	DelayTime 1(Hi)		
2 (06)	DelayTime 2(Lo)	000..500	00..1F4
3 (07)	DelayTime 2(Hi)		
4 (08)	FeedBack	-99..+99	9D..63
6 (10)	EQ.Low	-12~+12[dB]	F4..0C
7 (11)	EQ.High	-12~+12[dB]	F4..0C

Type 19:Chorus1, 20:Chorus2

Offset(ParaNo.LSB)	name	value	data(Hex)
0 (04)	Mod Depth	00..99	00..63
1 (05)	Mod Speed	*1	00..D8
2 (06)	MG Status	*2	****
4 (08)	Delay Time	00..200	00..C8
6 (10)	EQ.High	-12~+12[dB]	F4..0C
7 (11)	EQ.Low	-12~+12[dB]	F4..0C

*1 00h..63h : 0.03..3.00 (0.03 Step)
 64h..C7h : 3.1...13.0 (0.1 Step)
 C8h..D8h : 14 ...30 (1 Step)

*2 bit0=Mod.WaveForm(0:SIN,1:TRI)
 bit1=Phase(1:180[deg]-fixed)
 bit2=Mod.WaveShape(0:Chorus)

Type 21:Quad.Chorus, 22:XOverChorus

Offset(ParaNo.LSB)	name	value	data(Hex)
0 (04)	DelayTime L	000..250	00..FA
1 (05)	DelayTime L	000..250	00..FA
2 (06)	Mod Speed	01..99	01..63
3 (07)	Mod Depth	00..99	00..63
4 (08)	Mod WaveForm	*3	EB..14
6 (10)	EQ.Low	-12~+12[dB]	F4..0C
7 (11)	EQ.High	-12~+12[dB]	F4..0C

*3 EBh(T+10), EFh(T+9), EEh(T+8)... FEh(T-9), FFh(T-10),
 00(S-10), 01h(S-9), 02h(S-8)... 13h(S+9), 14h(S+10).

Type 23:Harm.Chorus

Offset(ParaNo.LSB)	name	value	data(Hex)
0 (04)	DelayTime L(Lo)	000..500	00..1F4
1 (05)	DelayTime L(Hi)		
2 (06)	DelayTime R(Lo)	000..500	00..1F4
3 (07)	DelayTime R(Hi)		
4 (08)	Mod Speed	01..99	01..63

5 (09)	Mod Depth	00..99	00..63
6 (10)	Filt.SplitPoint	00..18	00..12

Type 24:Sym.Ensemble

Offset(ParaNo.LSB)	name	value	data(Hex)
0 (04)	Mod Depth	00..99	00..63
6 (10)	EQ.High	-12~+12[dB]	F4..0C
7 (11)	EQ.Low	-12~+12[dB]	F4..0C

Type 25:Flanger1, 26:Flanger2, 27:XOverFlngnr

Offset(ParaNo.LSB)	name	value	data(Hex)
0 (04)	Delay Time	00..200	00..C8
1 (05)	Mod Depth	00..99	00..63
2 (06)	Mod Speed	01..99	01..63
3 (07)	Resonance	-99..99	9D..63
6 (10)	EQ.Low	-12~+12[dB]	F4..0C
7 (11)	EQ.High	-12~+12[dB]	F4..0C

Type 28:Exciter

Offset(ParaNo.LSB)	name	value	data(Hex)
0 (04)	Blend	-99..99	9D..63
1 (05)	Emphatic Point	01..10	01..0A
6 (10)	EQ.High	-12~+12[dB]	F4..0C
7 (11)	EQ.Low	-12~+12[dB]	F4..0C

Type 29:Enhancer

Offset(ParaNo.LSB)	name	value	data(Hex)
0 (04)	Harmonic Density	01..99	01..63
1 (05)	Hot Spot	01..20	01..14
2 (06)	Stereo Width	00..99	00..63
3 (07)	Delay	01..99	01..63
6 (10)	EQ.Low	-12~+12[dB]	F4..0C
7 (11)	EQ.High	-12~+12[dB]	F4..0C

Type 30:Distortion, 31:Over Drive

Offset(ParaNo.LSB)	name	value	data(Hex)
0 (04)	Drive(Edge)	01..111	01..6F
1 (05)	Hot Spot	00..99	00..63
2 (06)	Resonance	00..99	00..63
3 (07)	Out Level	00..99	00..63
6 (10)	EQ.Low	-12~+12[dB]	F4..0C
7 (11)	EQ.High	-12~+12[dB]	F4..0C

Type 32:Phaser , 33:Phaser 2

Offset(ParaNo.LSB)	name	value	data(Hex)
0 (04)	Mod Depth	00..99	00..63
1 (05)	Mod Speed	*1	00..D8
2 (06)	MG Status	*2	****
3 (07)	FeedBack	-99..99	9D..63
4 (08)	Manual	00..99	00..63

*1 00h..63h : 0.03..3.00 (0.03 Step)

64h..C7h : 3.1..13.0 (0.1 Step)

C8h..D8h : 14 ...30 (1 Step)

*2 bit0=Mod.WaveForm(0:SIN,1:TRI)

bit1=Phase(0:0[deg](Phaser 2), 1:180[deg](Phaser 1))

bit2=Mod.WaveShape(0-fixed)

Type 34:Rotary Speaker

Offset(ParaNo.LSB)	name	value	data(Hex)
0 (04)	Vibrato Depth	00..15	00..0F
1 (05)	Acceleration	01..15	01..0F
2 (06)	Slow Speed	01..99	01..63
3 (07)	Fast Speed	01..99	01..63

Type 35:Auto Pan, 36:Tremolo

Offset(ParaNo.LSB)	name	value	data(Hex)
0 (04)	Depth	00..99	00..63
1 (05)	Speed	*1	00..D8
2 (06)	MG Status	*2	****
3 (07)	Shape	-99..99	9D..63
6 (10)	EQ.High	-12~+12[dB]	F4..0C
7 (11)	EQ.Low	-12~+12[dB]	F4..0C

*1 00h..63h : 0.03..3.00 (0.03 Step)

64h..C7h : 3.1...13.0 (0.1 Step)

C8h..D8h : 14 ...30 (1 Step)

*2 bit0=Mod.WaveForm(0:SIN,1:TRI)

bit1=Phase(0:0[deg](Tremolo), 1:180[deg](Auto Pan))

bit2=Mod.WaveShape(0-fixed)

Type 37:Para.EQ

Offset(ParaNo.LSB)	name	value	data(Hex)
0 (04)	Low Freq	00..29	00..1D
1 (05)	Low Gain	-12..12	F4..0C
2 (06)	Mid Freq	00..29	00..1D
3 (07)	Mid Gain	-12..12	F4..0C
4 (08)	Mid Width	00..99	00..63
5 (09)	High Freq	00..29	00..1D
6 (10)	High Gain	-12..12	F4..0C

Type 38:Chorus-Delay, 39:Flanger-Delay

Offset(ParaNo.LSB)	name	value	data(Hex)
0 (04)	Cho.DelayTime	00..50	00..32
1 (05)	Cho.ModSpeed	01..99	01..63
2 (06)	Cho.ModDepth	00..99	00..63
3 (07)	Cho.Feedback	-99..99	9D..63
4 (08)	Dly.DelayTime	00..450	00..E1
5 (09)	Dly.Feedback	-99..99	9D..63

Type 40:Delay/Hall

Offset(ParaNo.LSB)	name	value	data(Hex)
0 (04)	DelayTime (Lo)	000..500	00..1F4
1 (05)	DelayTime (Hi)		
2 (06)	FeedBack	-99..+99	9D..63
3 (07)	High Damp	0~99[%]	00..63
4 (08)	Reverb Time	0.2~9.9[sec]	00..61
6 (10)	High Damp	0~99[%]	00..63
7 (11)	Pre Delay	0~150[ms]	00..96

Type 41:Delay/Room

Offset(ParaNo.LSB)	name	value	data(Hex)
0 (04)	DelayTime (Lo)	000..500	00..1F4
1 (05)	DelayTime (Hi)		
2 (06)	FeedBack	-99..+99	9D..63
3 (07)	Hi Damp	0~99[%]	00..63
4 (08)	Reverb Time	0.2~4.9[sec]	00..2F
6 (10)	Hi Damp	0~99[%]	00..63
7 (11)	Pre Delay	0~150[ms]	00..96

Type 42:Delay/Chorus

Offset(ParaNo.LSB)	name	value	data(Hex)
0 (04)	DelayTime (Lo)	000..500	00..1F4
1 (05)	DelayTime (Hi)		
2 (06)	FeedBack	-99..+99	9D..63
3 (07)	Hi Damp	0~99[%]	00..63
4 (08)	Mod Depth	00..99	00..63
5 (09)	Mod Speed	*1	00..D8
6 (10)	MG Status	*2	****

*1,*2 See "Type19:Chorus 1".

Type 43:Delay/Flanger

Offset(ParaNo.LSB)	name	value	data(Hex)
0 (04)	DelayTime (Lo)	000..500	00..1F4
1 (05)	DelayTime (Hi)		
2 (06)	FeedBack	-99..+99	9D..63
3 (07)	Hi Damp	0~99[%]	00..63
4 (08)	Mod Depth	00..99	00..63
5 (09)	Mod Speed	*1	00..D8
7 (11)	FeedBack	-99..+99	9D..63

*1,*2 See "Type19:Chorus 1".

Type 44:Delay/Distortion, 45:Delay/OverDrive

Offset(ParaNo.LSB)	name	value	data(Hex)
0 (04)	DelayTime (Lo)	000..500	00..1F4
1 (05)	DelayTime (Hi)		
2 (06)	FeedBack	-99..+99	9D..63
3 (07)	Drive(Edge)	01..111	01..6F
4 (08)	Hot Spot	01..99	01..63
5 (09)	Resonance	00..99	00..63
6 (10)	Out Level	01..99	01..63

Type 46:Delay/Phaser

Offset(ParaNo.LSB)	name	value	data(Hex)
0 (04)	DelayTime (Lo)	000..500	00..1F4
1 (05)	DelayTime (Hi)		
2 (06)	FeedBack	-99..+99	9D..63
3 (07)	Hi Damp	0~99[%]	00..63
4 (08)	Mod Depth	00..99	00..63
5 (09)	Mod Speed	*1	00..D8
7 (11)	FeedBack	-99..+99	9D..63

*1 See "Type32:Phaser 1".

Type 47:Delay/Rotary Spk.

Offset(ParaNo.LSB)	name	value	data(Hex)
0 (04)	DelayTime (Lo)	000..500	00..1F4
1 (05)	DelayTime (Hi)		
2 (06)	FeedBack	-99..+99	9D..63
3 (07)	Acceleration	01..15	01..0F
4 (08)	Slow Speed	01..99	01..63
5 (09)	Fast Speed	01..99	01..63

 *
 * Table 4: Global Parameters Dump (total 10 byte)
 *

Ofs (Hex)	Name	Data (Hex)	Description
00	BPS Switch	0...1	0:31.25Kbps, 1:38.4Kbps
01	BankMapType	0...1	0:GS/XG MAP, 1:05R/W MAP
02	ExclChannel	0...F	Ch.1~Ch.16
03	MemProtect	00...3F (0000 0000b ...0011 1111b)	bit0~3:Memory Protect bit0:Prog(0=OFF, 1=ON) bit1:Combi(0=OFF, 1=ON) bit2:Kit(0=OFF, 1=ON) bit3:Eff(0=OFF, 1=ON) bit4:BootOption Sw (0=None, 1=Load Multil) bit5:Prog to Port Sw

(0=Native, 1=Emulate)

Ofs (Hex)	Name	Data (Hex)	Description
04	BackLight	0...7 (0000 0000b ...0000 0111b)	bit0:GM Mode On Color bit1:GS Reset Color bit2:XG System On Color (0=Green, 1=Orange)
05	RxSystemON	0...7 (0000 0000b ...0000 0111b)	bit0:Rx.GM Mode On bit1:Rx.GS Reset bit2:Rx.XG System On (0=OFF, 1=ON)
06	ToneNote	0...B	0~11 = Note 'C'~'B'
07	ToneVelo	00...7F	0~127
08	LCD Contrast	00...1F	0~31
09	FxFollowSW	0, 01...20	0=OFF, 1~32=ON(Part No.)

```
*****
*
* Table 5: Multi Parameters Dump (8566 byte)
*
*****
```

offset (HEX)	Description
0000h...0B7Fh :	32 Part Parameters --> see Table 7
0B80h...0C17h :	Part Common Parameter --> see Table 6
0C18h...0C3Dh :	Current Effect Parameter --> see Table 2
0C3Eh...118Bh :	Modify Drum 1 --> see Table 8
118Ch...16D9h :	Modify Drum 2 --> see Table 8
16DAh...1C27h :	Modify Drum 3 --> see Table 8
1C28h...2175h :	Modify Drum 4 --> see Table 8

```
*****
*
* Table 6: Part Common Parameters Dump (152 byte)
*
*****
```

Ofs (Hex)	Name	Data (Hex)	Description
00	MasterTune	0000...07FF	-1024~0~+1023
02	MasterVolume	00...7F	0~127
03	MasterKeyShift	28-40-58	-24~0~+24 [semitone]
04	MasterBalance	01-40-7F	L63~CNT~R63
05	MasterFxBankMSB		-> See Table 10-2.
06	MasterFxBankLSB	00(Only)	-> See Table 10-2.
07	MasterEffectProg	00...7F	1~128 (Effect Set No.)
08	MIDItoPort 01	0...2	0:A, 1:B, 2:C(DB)
09	MIDItoPort 02	0...2	0:A, 1:B, 2:C(DB)
.	.	.	.
.	.	.	.
17	MIDItoPort 16	0...2	0:A, 1:B, 2:C(DB)
18	ProgChgtoPort001	0...3	0:A, 1:B, 2:C(DB), 3:Ignore
19	ProgChgtoPort002	0...3	0:A, 1:B, 2:C(DB), 3:Ignore
.	.	.	.
.	.	.	.
.	.	.	.
97	ProgChgtoPort128	0...3	0:A, 1:B, 2:C(DB), 3:Ignore

```

*****
*
* Table 7: Part Parameters Dump ( 92 byte/part : total 2,944 byte )
*
*****

```

Ofs (Hex)	Name	Data (Hex)	Description
Part 01 Parameters			
00	BankMSB	00...7F	-> See ProgName list
01	BankLSB	00...7F	-> See ProgName list
02	ProgNo	00...7F	-> See ProgName list
03	RxMIDICh	00...0F, 10...1F,20	Ch.A01...16, Ch.B01...16,OFF
04	RxSwitch (2 byte)	0...1	0:OFF, 1:ON bit0:RxNoteOnOff bit1:RxControlChg bit2:RxPitchBend bit3:RxChanAfter bit4:RxDamper bit5:RxPortamento bit6:RxProgChg bit7:RxPolyAfter
05			bit0:RxRPN bit1:RxNRPN bit2:RxModulation bit3:RxVolume bit4:RxPanpot bit5:RxExpression bit6:RxSostenute bit7:RxSoftPedal
06	MONOPOLY	0...1	0=Mono, 1=Poly
07	PartMode	0...5	0=Normal,1=Drum, 2..5=MDrml...4
08	CoarseTune	28..40..58	-24~0~+24 [semitone]
09	FineTune	80..00..7F	-128~0~127 (-12.8[Hz]~+12.7[Hz])
0A	Volume	00...7F	000...127
0B	Expression	00...7F	000...127
0C	VelDepth	00...7F	000...127
0D	VelOffset	00...7F	000...127
0E	Panpot	0,1..40..7F	RND,L63~CNT~R63
0F	NoteBottom	00...7F	0~127 = C-1~G9
10	NoteTop	00...7F	0~127 = C-1~G9
11	AC1Number	00...5F	0~95: Control No.
12	AC2Number	00...5F	0~95: Control No.
13	ChoSend	00...7F	000...127
14	RevSend	00...7F	000...127
15	RxBankSelect	0...1	0=OFF, 1=ON
16	VibFrequency	00..40..7F	-64..00..+63
17	VibIntensity	00..40..7F	-64..00..+63
18	VibDelay	00..40..7F	-64..00..+63
19	CutoffFreq	00..40..7F	-64..00..+63
1A	Color	00..40..7F	-64..00..+63
1B	EGAttackTime	00..40..7F	-64..00..+63
1C	EGDecayTime	00..40..7F	-64..00..+63
1D	EGReleaseTime	00..40..7F	-64..00..+63
1E	Scale C	00..40..7F	-64..+63[cent]
1F	Scale C#	00..40..7F	-64..+63[cent]
20	Scale D	00..40..7F	-64..+63[cent]
21	Scale D#	00..40..7F	-64..+63[cent]
22	Scale E	00..40..7F	-64..+63[cent]
23	Scale F	00..40..7F	-64..+63[cent]
24	Scale F#	00..40..7F	-64..+63[cent]
25	Scale G	00..40..7F	-64..+63[cent]
26	Scale G#	00..40..7F	-64..+63[cent]
27	Scale A	00..40..7F	-64..+63[cent]
28	Scale A#	00..40..7F	-64..+63[cent]
29	Scale B	00..40..7F	-64..+63[cent]
2A	MOD Pitch	28..40..58	-24~0~+24 [semitone]
2B	MOD VDF	00..40..7F	-64~0~+63
2C	MOD VDA	00..40..7F	-64~0~+63
2D	MOD LFO Freq	00..40..7F	-64~0~+63
2E	MOD LFO Pitch	00...7F	000...127
2F	MOD LFO VDF	00...7F	000...127
30	MOD LFO VDA	00...7F	000...127

Ofs (Hex)	Name	Data (Hex)	Description

31	BEND Pitch	28..40..58	-24~0~+24 [semitone]
32	BEND VDF	00..40..7F	-64~0~+63
33	BEND VDA	00..40..7F	-64~0~+63
34	BEND LFO Freq	00..40..7F	-64~0~+63
35	BEND LFO Pitch	00...7F	000...127
36	BEND LFO VDF	00...7F	000...127
37	BEND LFO VDA	00...7F	000...127
38	CAf Pitch	28..40..58	-24~0~+24 [semitone]
39	CAf VDF	00..40..7F	-64~0~+63
3A	CAf VDA	00..40..7F	-64~0~+63
3B	CAf LFO Freq	00..40..7F	-64~0~+63
3C	CAf LFO Pitch	00...7F	000...127
3D	CAf LFO VDF	00...7F	000...127
3E	CAf LFO VDA	00...7F	000...127
3F	PAf Pitch	28..40..58	-24~0~+24 [semitone]
40	PAf VDF	00..40..7F	-64~0~+63
41	PAf VDA	00..40..7F	-64~0~+63
42	PAf LFO Freq	00..40..7F	-64~0~+63
43	PAf LFO Pitch	00...7F	000...127
44	PAf LFO VDF	00...7F	000...127
45	PAf LFO VDA	00...7F	000...127
46	AC1 Pitch	28..40..58	-24~0~+24 [semitone]
47	AC1 VDF	00..40..7F	-64~0~+63
48	AC1 VDA	00..40..7F	-64~0~+63
49	AC1 LFO Freq	00..40..7F	-64~0~+63
4A	AC1 LFO Pitch	00...7F	000...127
4B	AC1 LFO VDF	00...7F	000...127
4C	AC1 LFO VDA	00...7F	000...127
4D	AC2 Pitch	28..40..58	-24~0~+24 [semitone]
4E	AC2 VDF	00..40..7F	-64~0~+63
4F	AC2 VDA	00..40..7F	-64~0~+63
50	AC2 LFO Freq	00..00..7F	-64~0~+63
51	AC2 LFO Pitch	00...7F	000...127
52	AC2 LFO VDF	00...7F	000...127
53	AC2 LFO VDA	00...7F	000...127
54	PortaSw	0...1	0=OFF, 1=ON
55	PortaTime	00...7F	000...127
56	PEGStartL	00..40..7F	-64~+63
57	PEGAttackT	00..40..7F	-64~+63
58	PEGReleaseT	00..40..7F	-64~+63
59	PEGReleaseL	00..40..7F	-64~+63
5A	VelBottom	00...7F	0~127= C-1~G9
5B	VelTop	00...7F	0~127= C-1~G9

Part 02 Parameters			

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.		.	.
Part 32 Parameters			

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.		.	.
0B7F			

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*****
*
*   Table 8: DrumKit Parameters Dump ( 14 byte/Inst : total 1,358 byte )
*
*****

```

Ofs (Hex)	Name	Data (Hex)	Description

INSTRUMENT 1			
00	Instrument	000...11D	0...285
-01			
02	CoarseTune	00..40..7F	-64~0~+63[semitone]
03	FineTune	00..40..7F	-64~0~+63[cent]
04	Level	00...7F	000...127
05	ExclGroup	00...7F	0:OFF, 1..127:Group No.
06	KeyAssign	0...7	bit0=RxNoteON (0=OFF, 1=ON)
		(0000 0000b	bit1=RxNoteOFF
		...0000 0111b)	(0=OFF, 1=ON)
			bit2=KeyAssign (0=Single, 1=Multi)
07	Cutoff	00..40..7F	-64~0~+63
08	Color	00..40..7F	-64~0~+63
09	AttackTime	00..40..7F	-64~0~+63
0A	DecayTime	00..40..7F	-64~0~+63
0B	Panpot	0, 1..40..7F	RND, L63~CNT~R63
0C	RevSend	00...7F	000...127
0D	ChoSend	00...7F	000...127
INSTRUMENT 2			
0E	same as INSTRUMENT 1 Paramters		
.			
.			
1C			
INSTRUMENT 3			
1D	same as INSTRUMENT 1 Paramters		
.			
.			
.			
.	.	.	.
.	.	.	.
.	.	.	.
INSTRUMENT 97			
0540	same as INSTRUMENT 1 Paramters		
.			
.			
054D			

```

*****
*
* Table 9: Program Parameters Dump ( 158 byte)
*
*****

```

Ofs (Hex)	Name	Data (Hex)	Description
00..09	Program Name	20...7F	32~127 (ASCII Character)
0A	Program Mode	0...1	0:Single, 1:Double
0B	Fx BankMSB	00...7F	-> See Table 10-2.
0C	Fx BankLSB	00...7F	-> See Table 10-2.
0D	Fx Number	00...7F	1...128
OSC 1 Parameters			
0E	OSC MultiSample	000...20F	0...527 MultiSample No.
-0F			
10	OSC Octave	E8,F4,00,0C	-24(=32'), -12(=16'), 0(= 8'), +12(= 4')
11	OSC Level	00...7F	0...127

12	OSC CoarseTune	F4...0C	-12~+12 [semitone]
13	OSC FineTune	9D...63	-99~+99
14	OSC PitchSlope	F6...14	-1.0...+2.0 (Step 0.1)
15	OSC VelBottom	01...7F	1...127
16	OSC VelTop	01...7F	1...127
17	OSC DelayStart	00...7F	0...127 (0:OFF)
18	PitchLFO WaveForm		*1
19	PitchLFO Frequency	00...7F	0...127
1A	PitchLFO Delay	00...7F	0...127
1B	PitchLFO FadeIn	00...7F	0...127
1C	PitchLFO Intensity	00...7F	0...127
1D	P. EG Intensity	80..00..7F	-128~0~+127 (-10ct...+10ct)
1E	P. EG IntVelSense	80..00..7F	-128~0~+127
1F	P. EG TimeVelSense	80..00..7F	-128~0~+127
20	P. EG StartLevel	80..00..7F	-128~0~+127 (-10ct...+10ct)
21	P. EG AttackTime	00...7F	0...127
22	P. EG AttackLevel	80..00..7F	-128~0~+127 (-10ct...+10ct)
23	P. EG DecayTime	00...7F	0...127
24	P. EG ReleaseTime	00...7F	0...127
25	P. EG ReleaseLevel	80..00..7F	-128~0~+127 (-10ct...+10ct)
26	FiltLFO WaveForm		*1
27	FiltLFO Frequency	00...7F	0...127
28	FiltLFO Delay	00...7F	0...127
29	FiltLFO FadeIn	00...7F	0...127
2A	FiltLFO Intensity	00...7F	0...127
2B	VDF Cutoff	00...7F	0...127 (22Hz...15.625kHz)
2C	VDF KBDTRK Key	00...7F	0...127 (C-1..G9)
2D	VDF KBDTRK Mode		*3
2E	VDF KBDTRK FcInt	80..00..7F	-128~0~+127
2F	VDF KBDTRK EgTime	00...7F	0...127
30	VDF K. TRK EgTimeSw		*2
31	Color Intensity	00...7F	0...127
32	Color VelSense	80..00..7F	-128~0~+127
33	F. EG Intensity	00...7F	0...127
34	F. EG IntVelSense	80..00..7F	-128~0~+127
35	F. EG TimeVelSense	00...7F	0...127
36	F. EG TimeVel Sw		*2
37	F. EG AttackTime	00...7F	0...127
38	F. EG AttackLevel	80..00..7F	-128~0~+127
39	F. EG DecayTime	00...7F	0...127
3A	F. EG BreakPoint	80..00..7F	-128~0~+127
3B	F. EG SlopeTime	00...7F	0...127
3C	F. EG SustainLevel	80..00..7F	-128~0~+127
3D	F. EG ReleaseTime	00...7F	0...127
3E	F. EG ReleaseLevel	80..00..7F	-128~0~+127

Ofs (Hex)	Name	Data (Hex)	Description
3F	AmplFO WaveForm		*1
40	AmplFO Frequency	00...7F	0...127
41	AmplFO Delay	00...7F	0...127
42	AmplFO FadeIn	00...7F	0...127
43	AmplFO Intensity	00...7F	0...127
44	VDA KBDTRK Key	00...7F	0...127 (C-1..G9)
45	VDA KBDTRK Mode		*3
46	VDA KBDTRK AmpInt	80..00..7F	-128~0~+127
47	VDA KBDTRK EgTime	00...7F	0...127
48	VDA K. TRK EgTimeSw		*2
49	A. EG LevelVelSense	80..00..7F	-128~0~+127
4A	A. EG TimeVelSense	00...7F	0...127
4B	A. EG TimeVel Sw		*2
4C	A. EG AttackTime	00...7F	0...127
4D	A. EG AttackLevel	00...7F	0...127
4E	A. EG DecayTime	00...7F	0...127
4F	A. EG BreakPoint	00...7F	0...127
50	A. EG SlopeTime	00...7F	0...127
51	A. EG SustainLevel	00...7F	0...127
52	A. EG ReleaseTime	00...7F	0...127
53	Pan A/B	00,01..40..7F	0, 1~64~127 (RND, L63~CNT~R63)
54	C Send	00...7F	0...127
55	D Send	00...7F	0...127

OSC 2 Parameters

56	
.	(same as OSC 1 Parameters)
.	
9D	

*1 : LFO WaveForm
bit0~bit2 0:TRI, 1:SAW-UP, 2:SAW-DN, 3:SQR1, 4:SQR2, 5:RND

*2 : Keyboard Tracking Switch
bit0:Attack Time SW / 0:OFF, 1:ON
bit1:Decay Time SW / 0:OFF, 1:ON
bit2:Slope Time SW / 0:OFF, 1:ON
bit3:Release Time SW / 0:OFF, 1:ON
bit4:Attack Time Porarity / 0:+, 1:-
bit5:Decay Time Porarity / 0:+, 1:-
bit6:Slope Time Porarity / 0:+, 1:-
bit7:Release Time Porarity / 0:+, 1:-

*3 : Keyboard Tracking Mode Switch
OFF: 0
LOW: 1
HIGH: 2
ALL: 3

*
* Table 10: Combination Parameters Dump (126 byte)
*

< Table 10-1 : Combination Parameters(126 byte) >

Offset (Hex.)	Name	value	description
00...09	Combi Name	32~127	ASCII character
0A	Own FX BankMSB	0~127	-> See Table 10-2.
0B	Own FX BankLSB	0~127	
0C	Own FX Number	0~127	
0D	(dummy data)		
TIMBRE 1			
0E	Bank No. MSB	0~127	-> See ProgName list
0F	Bank No. LSB	0~127	-> See ProgName list
10	Program No.	0~127	
11	Volume	0~127	
12	Panpot	0,1~64~127	RND,L63~CNT~R63
13	Reverb Send	0~127	
14	Chorus Send	0~127	
15	Note Win Bottom	0~127	C-1~G9
16	Note Win Top	0~127	C-1~G9
17	Vel Win Bottom	1~127	
18	Vel Win Top	1~127	
19	Transpose	-24~24(E8h~18h) [semitone]	
1A	Detune	-50~50(CEh~32h) [cent]	
1B(bit 0)	Note ON/OFF SW	0,1 0=OFF 1=ON	(Timbre ON/OFF)
1B(bit 1)	ControlChange Sw	0,1 0=OFF 1=ON	
1B(bit 2)	Pitch Bend Sw	0,1 0=OFF 1=ON	
1B(bit 3)	After Touch Sw	0,1 0=OFF 1=ON	(Channel/Poly)
1B(bit 4)	Damper Sw	0,1 0=OFF 1=ON	
1B(bit 5)	Portamento Sw	0,1 0=OFF 1=ON	
TIMBRE 2			
1C			
.	(same as TIMBRE 1)		
.			
29(bit 5)			
TIMBRE 3			
.			
.			
.			
TIMBRE 8			
70			

Fx Bank Name	Bank	Bank MSB:LSB (HEX)
B	same as 'PrgA' Bank	51:** (00:00 by 05R/W MAP)
C	same as 'PrgB' Bank	52:**
D	same as 'PrgC' Bank	53:**
E	same as 'CmbA' Bank	59:**
F	same as 'CmbB' Bank	5A:**
G	same as 'CmbC' Bank	5B:**
H	same as 'PrgU' 'CmbU' Bank	50:**, 58:**
A	(Others Bank)	38:**, ...